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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/824,173

04/13/2004

Sundar Vasudevan

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EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/824,173

Applicant(s)

VASUDEVAN, SUNDAR

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6,10,12-20,22,24,27-30 and 32-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6,10,12,13,17-20,22,24,27-30 and 32-43 is/are rejected.
- 7) ☒ Claim(s) 14-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/24/07 has been entered.
2. All outstanding rejections are overcome by applicant's amendment filed 1/24/07.

Claim Objections

3. Claims 2-3, 6, 10, 12-17, 19-20, 22, 24, 27, 32-33 and 38-43 objected to because of the following informalities:

In order that each of the claims recites proper antecedent basis, it is advised that (i) in each of claims 2, 3, 6, 10, 12-17, and 38-43, "A ink-jet ink" is changed to "The ink-jet ink", (ii) in each of claims 19-20, 22, 24, and 27, "A system" is changed to "The system", and (iii) in each of claims 32-33, "A method" is changed to "The method".

4. Claims 2-3 and 19-20 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is

required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

(a) Claim 2, which depends on claim 1, recites that the “hydrophilic group is selected from the group consisting of fluoric acids, α and/or β fluorocarboxylic acids, and combinations thereof” while claim 1 recites that the polymer includes “styrene-vinylsulfonic acid copolymer, styrene-butyl acrylate-methacrylate acid-vinylsulfonic acid copolymer, styrene-trifluoroacrylic acid-vinylsulfonic acid, styrene- α -(trifluoromethyl)acrylic acid-vinylsulfonic acid copolymer, or styrene-trifluoroacrylic acid copolymer”. Thus, claim 2 fails to further limit the scope of the claim on which it depends, namely, claim 1 given that while claim 1 is limited to polymer obtained from first monomer having hydrophilic group wherein the polymer includes those obtained from trifluoroacrylic acid or α -(trifluoromethyl)acrylic acid, claim 2 encompasses polymers obtained from any fluoric acids or α and/or β fluorocarboxylic acids, i.e. trifluoroacetic acid, pentafluoropropionic acid, etc., which is outside the scope of claim 1 which recites specific polymers.

Similar objection arises with respect to claim 19, which recites similar claim language to claim 2, and depends on amended claim 18, which recites similar claim language to claim 1.

(b) Claim 3, which depends on claim 1, recites “wherein the hydrophilic group is a sulfonic acid” while claim 1 recites that the polymer includes “styrene-vinylsulfonic acid copolymer, styrene-butyl acrylate-methacrylate acid-vinylsulfonic acid copolymer, styrene-trifluoroacrylic acid-vinylsulfonic acid, styrene- α -(trifluoromethyl)acrylic acid-vinylsulfonic

acid copolymer, or styrene-trifluoroacrylic acid copolymer". Thus, claim 3 fails to further limit the scope of the claim on which it depends, namely, claim 1 given that while claim 1 is limited to polymer obtained from first monomer having hydrophilic group wherein the polymer includes those obtained from vinylsulfonic acid, claim 3 encompasses polymers obtained from any monomer having a sulfonic acid group, i.e. styrenesulfonic acid, allylsulfonic acid, etc., which is outside the scope of claim 1 which recites specific polymers.

Similar objection arises with respect to claim 20, which recites similar claim language to claim 3, and depends on amended claim 18, which recites similar claim language to claim 1.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2, 19, 30, and 37-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 19, 30, and 37 each recite "fluoric acids". The scope of each of the claims is confusing given that it is not clear what is meant by "fluoric acids" or what types of acids this phrase encompasses. Clarification is requested.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 3, 6, 10, 12-13, 17-18, 20, 22, 24, 29-30, 32-33, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamura et al. (U.S. 7,074,843).

Nakamura et al. disclose ink jet ink comprising liquid vehicle possessing pH of 7.5-8.5, microencapsulated pigment, i.e. pigment encapsulated with polymer, wherein the polymer is obtained from hydrophilic monomer such as methacrylic acid and vinyl sulfonic acid and hydrophobic monomer such as styrene and butyl acrylate. There is also disclosed system for printing an image comprising substrate and ink jet printer for printing onto the substrate. Although there is no explicit disclosure of ink jet pen, it is clear that the printer would necessarily inherently comprise ink jet pen containing the ink. There is also disclosed method of printing an image comprising ink jetting the ink onto substrate (col.1, lines 8-10, col.9, lines 26-30, col.19, lines 45-51, col.20, lines 1-16, 29, 33, and 56-63, col.35, lines 12-21, col.38, lines 13-15, col.38, line 63-col.39, line 3, and col.41, lines 16-25). Attention is drawn to microencapsulated pigment MCP 2-6 in Table 2 that is obtained from monomers including 13% vinyl sulfonic acid and 26% styrene and to MCP 2-7 in Table 2 that is obtained from monomers including 17% vinyl sulfonic acid as well as methacrylic acid, butyl acrylate, and styrene.

Given that Nakamura et al. disclose liquid vehicle with pH as presently claimed as well as polymer identical to that presently claimed, it is clear that the polymer would inherently be stable in the liquid vehicle as presently claimed.

In light of the above, it is clear that Nakamura et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1, 3, 6, 10, 12-13, 17-18, 20, 22, 24, 29-30, 32-33, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/26892.

WO 02/26892¹ discloses inkjet ink comprising liquid vehicle and polymer enrobed pigment, i.e. pigment encapsulated with polymer, wherein the polymer is obtained from 20-90% hydrophobic monomer such as styrene and butyl acrylate and 5-80% hydrophilic monomer such as vinyl sulfonic acid as well as methacrylic acid. There is also disclosed system for printing an image comprising substrate and ink jet printer for printing onto the substrate. Although there is no explicit disclosure of ink jet pen, it would have been obvious to one of ordinary skill in the art that the printer would necessarily intrinsically comprise ink jet pen containing the ink. There is also disclosed method of printing an image comprising ink jetting the ink onto substrate (paragraphs 1, 103-104, 105(line 12), 107, 111, 114, 142, 145, and 146). Although there is no explicit disclosure that the polymer enrobed pigment is stable in the liquid vehicle at a pH of from about 5.5 to about 8.5, given that WO 02/26892 discloses that the liquid vehicle is water which would intrinsically possess pH of about 7 and given that WO 02/26892 discloses polymer enrobed pigment as presently claimed, it is clear that the polymer enrobed pigment would intrinsically be stable in the liquid vehicle at such pH.

¹ It is noted that when utilizing WO 02/26892, the disclosures of the reference are based on Auweter et al. (U.S. 2003/0177943) which is an English language equivalent of the reference. Therefore, the column and line numbers cited with respect to WO 02/26892 are found in Auweter et al.

While WO 02/26892 fails to exemplify the presently claimed ink nor can the claimed ink be “clearly envisaged” from WO 02/26892 as required to meet the standard of anticipation (cf. MPEP 2131.03), nevertheless, in light of the overlap between the claimed ink and the ink disclosed by WO 02/26892, it is urged that it would have been within the bounds of routine experimentation, as well as the skill level of one of ordinary skill in the art, to use ink which is both disclosed by WO 02/26892 and encompassed within the scope of the present claims and thereby arrive at the claimed invention.

12. Claims 1, 3, 6, 10, 12-13, 17-18, 20, 22, 24, 29-30, 32-33, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiguchi (U.S. 2004/0212667) in view of Kuo et al. (U.S. 5,854,308).

Nishiguchi discloses first ink jet ink comprising liquid medium possessing pH of 7-10 and pigment in dispersed state comprising dispersant that is graft polymer obtained from 10-50% hydrophilic monomer such as vinyl sulfonic acid and methacrylic acid and 40-90% hydrophobic monomers such as styrene and butyl acrylate. There is also disclosed system for printing an image comprising substrate and ink jet printer for printing onto the substrate comprising the first ink jet ink and second ink jet fluid, i.e. reactive liquid. Although there is no explicit disclosure of ink jet pen, it would have been obvious to one of ordinary skill in the art that the printer would necessarily intrinsically comprise ink jet pen containing the ink jet ink and second ink jet fluid. There is also disclosed method of printing an image comprising ink jetting the ink and the fluid

onto substrate (paragraphs 2, 16-19, 30, 32 (lines 4-5), 34 (lines 4 and 7), 41, 43 (line 13), 53, 56, 58, and 65).

Although there is no disclosure that the pigment is encapsulated by the polymer as presently claimed, it is well known, as disclosed by Kuo et al. (col. 1, lines 44-48), that dispersants adsorb onto pigment surface to build a protective layer around each particle. Thus, it is clear that the dispersed pigment of Nishiguchi does include pigment encapsulated by the polymer as presently claimed.

Further, although there is no explicit disclosure that the dispersed pigment is stable in the liquid vehicle at a pH of from about 5.5 to about 8.5, given that Nishiguchi et al. disclose liquid vehicle with pH as presently claimed as well as polymer as presently claimed, it is clear that the polymer would intrinsically be stable in the liquid vehicle as presently claimed.

While Nishiguchi fails to exemplify the presently claimed ink nor can the claimed ink be “clearly envisaged” from Nishiguchi as required to meet the standard of anticipation (cf. MPEP 2131.03), nevertheless, in light of the overlap between the claimed ink and the ink disclosed by Nishiguchi, it is urged that it would have been within the bounds of routine experimentation, as well as the skill level of one of ordinary skill in the art, to use ink which is both disclosed by Nishiguchi and encompassed within the scope of the present claims and thereby arrive at the claimed invention.

13. Claims 27-28 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiguchi in view of Kuo et al. as applied to claims 1, 3, 6, 10, 12-13, 17-18, 20, 22, 24, 29-30,

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32-33, and 36 above, and further in view of Kitamura et al. (U.S. 6,498,222) and Kubota et al. (U.S. 6,426,375).

The difference between Nishiguchi in view of Kuo et al. and the present claimed invention is the requirement in the claims that the second ink jet fluid includes cationic component.

Nishiguchi discloses second ink jet fluid, i.e. reactive liquid, comprising polyvalent metal salt, however, there is no disclosure of cationic component as presently claimed.

Kitamura et al., which is drawn to ink jet ink set comprising ink and second ink jet fluid, i.e. reaction solution, disclose that the second ink jet fluid comprises, in addition to polyvalent metal salt, a cationic polymer to reduce bleed (abstract, col.1, lines 10-15, col.2, line 64-col.3, line 3, col.3, lines 53-64, and col.14, lines 4 and 61-66).

Although there is no disclosure in Nishiguchi et al. or Kitamura et al. that the second ink jet fluid comprises pigment, Kubota et al., which is drawn to ink jet ink set comprising ink and second ink jet fluid, i.e. reaction solution, disclose that the second ink jet fluid comprises pigment so that the fluid functions as an ink (col.1, lines 6-10, col.9, lines 47-48, and col.13, lines 50-53).

In light of the motivation for using cationic component and pigment in second ink jet fluid disclosed by Kitamura et al. and Kubota et al., respectively, as described above, it therefore would have been obvious to one of ordinary skill in the art to use cationic polymer and pigment in the second ink jet fluid of Nishiguchi in order to produce second ink jet fluid that functions as ink and to produce images with reduced bleed, and thereby arrive at the claimed invention.

Response to Arguments regarding Claim objections

14. Applicant argues that claim 2 does further limit the scope of claim 1 given that claim 2 limits the selection of the first monomer to be selected from fluoric acids, α and/or β -fluorocarboxylic acid, and combinations thereof.

However, claim 1 only discloses the use of specific polymers so it is not clear what claim 2 is limiting especially given that there is no explicit disclosure of hydrophilic monomers in claim 1. Further, while claim 1 recites polymer obtained from first monomer having hydrophilic group and second monomer having hydrophobic group and recites specific polymer that includes those obtained from trifluoroacrylic acid or α -(trifluoromethyl)acrylic acid, claim 2 encompasses polymers obtained from any fluoric acid group or α and/or β fluorocarboxylic acids, i.e. trifluoroacetic acid, pentafluoropropionic acid, etc., which is outside the scope of claim 1 which recites specific polymers.

Similarly, the examiner's position remains that claim 19 fails to further limit the scope of claim 18 for the same reasons as set forth above.

Applicant notes that similar to claim 2, claim 3 restricts the selection of the first monomer to that having a hydrophilic group with sulfonic acid. However, claim 1 only discloses the use of specific polymers so it is not clear what claim 3 is limiting especially given that there is no explicit disclosure of hydrophilic monomers in claim 1. Further, while claim 1 recites polymer obtained from first monomer having hydrophilic group and second monomer having hydrophobic group and recites specific polymer that includes those obtained from vinylsulfonic acid, claim 3 encompasses polymers obtained from any monomer having a sulfonic acid group,

i.e. styrenesulfonic acid, allylsulfonic acid, etc., which is outside the scope of claim 1 which recites specific polymers.

Similarly, the examiner's position remains that claim 20 fails to further limit the scope of claim 18 for the same reasons as set forth above.

Allowable Subject Matter

15. Claims 14-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 14-16 would be allowable if rewritten in independent form given that there is no disclosure or suggestion in the "closest" prior art WO 02/26892, Nakamura et al. (U.S. 7,074,843), or Nishiguchi (U.S. 2004/0212667) of ink jet ink comprising polymer-dispersed pigment including a pigment encapsulated with a polymer wherein the polymer is styrene-trifluoroacrylic acid-vinyl sulfonic acid, styrene- α -(trifluoromethyl)acrylic acid-vinyl sulfonic acid copolymer, or styrene-trifluoroacrylic acid copolymer.

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Parazak (U.S. 6,281,267) discloses ink jet ink comprising pigment and polymer obtained from monomers including trifluoromethacrylic acid and styrene, however, there is no disclosure or suggestion pigment encapsulated with polymer as presently claimed.

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17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
4/1/07